Personalised medicine

SciBar BOLLINGTON

One of our SciBar participants prepared this glossary, independently of Professor Ian Watson. Your feedback on the level of information and usefulness of the SciBar glossaries is most welcome.

Biomarker A substance found in the blood, other body fluids or tissue that identifies either a disease or a biochemical state that can be used to more carefully target a drug treatment.	**Pharmacometabonomics** Using the patient's 'metabolic phenotype' or biochemical state to more carefully target drugs at individual patients.
Drug metabolism How the body absorbs, transports and breaks down a drug. This depends on the patient's biochemical state at the time of treatment.	**Phenotype** The observable characteristics of an individual, produced by the genetic contribution (genotype) interacting with environmental factors. A patient's 'metabolic phenotype' is affected by physiological, chemical, genetic and environmental influences, including age, gender, stress, diet, lifestyle, exposure to environmental toxins or even the patient's intestinal bacteria.
Gene A section of DNA which 'codes' for a specific protein, i.e. instructs the cell how to make that protein.	
Gene expression In humans and animals, genes are usually in an "off state" until converted into structures that are active and can produce proteins.	**Protein** Large biological molecules found in all living cells, which are needed to build structures such as skin or muscle, and substances such as enzymes and hormones. Genes carry the instructions for making proteins.
Genome The complete genetic information (set of genes) of a particular organism.	**Proteomics** The study of the complete set of proteins (proteome) formed by a cell or organism.
Genotype The variant of a particular gene (or genes) possessed by an individual; as inherited from their parents.	**RNA** Very similar to DNA but only has one strand (not two). RNA strands act as an intermediary between DNA and proteins when genes are expressed.
Metabolomics (metabonomics) The analysis of small molecules (metabolites) generated during the chemical reactions going on in the body (metabolism).	**Transcriptome** The complete set of all RNA molecules transcribed by the genome. Each gene may produce more than one variant of transcribed RNA. By studying transcriptomes, researchers hope to determine when genes are turned on or off in different cells and tissues.
Non-coding DNA Region of a DNA sequence which does not contain any genes, so does not code for the production of a protein.	
Non-coding RNA An RNA molecule that is not converted into a protein.	**Transcription** The first step in gene expression; the process of making an RNA copy of a gene.
Pharmacogenomics Using the human genome to more carefully target drugs at individual patients.	

Useful weblinks:

Factsheet from the US National Institute of General Medical Sciences:
www.nigms.nih.gov/Research/FeaturedPrograms/PGRN/Background/FactSheet.htm

No SciBar in December. Next SciBar: 8 January 2013. Time: 6.30pm as usual.